

HEADS UP

REAL NEWS ABOUT DRUGS AND YOUR BODY

TEACHING GUIDE



CANNABIS: THE FACTS YOU NEED TO KNOW

With many states legalizing the use of cannabis for adults 21 and over, teens may have questions about whether the drug is safe. Teen brains are still developing, and so are particularly vulnerable to negative health effects of cannabis, such as memory problems and addiction. You can help your students make healthy choices by sharing the article “Cannabis: The Facts You Need to Know,” the online interactive “Cannabis and the Brain,” and the activity sheet “Help Spread the Facts About Cannabis.” The materials will help them learn facts about how cannabis can affect their developing brains.

LESSON PLAN

Step 1: Open a Discussion

Ask students what, if anything, they have noticed recently about changes in attitudes about cannabis in the country or your community. (*For example, they may have heard about states legalizing cannabis, noticed shops that sell it, or seen ads for it.*) Do they think these changes might affect people's opinions about the safety of the drug? If so, how? Ask students to raise their hand if they agree with the following statement: “Cannabis affects teens and adults in the same way.”

Step 2: Read the Student Article

Read the article aloud or have volunteers take turns. Pause after each section and discuss what you have learned. Make a list on the board of the possible changes to a person's body or behavior that may occur from using cannabis. Re-ask the question from Step 1. Ask for volunteers to explain some of the reasons why teens are more at risk from some of the effects of cannabis.

Step 3: Explore the Interactive

In small groups or pairs, have students navigate to the interactive “Cannabis and the Brain” at nida.nih.gov/drug-topics/parents-educators/lesson-plans. After they explore the information, instruct each group to brainstorm a specific, everyday action or behavior a person might exhibit (such as feeling sad, answering a test question, or kicking a soccer ball). Have them determine which area(s) of the brain may be involved in controlling it. When each group is finished, reconvene as a class and have students share their ideas. As part of the discussion, remind students that no one region of the brain is solely responsible for controlling any behavior. All of the regions of the brain are interconnected and work together to perform functions.

Step 4: Complete the Student Activity

Distribute the “Help Spread the Facts About Cannabis” activity sheet. Have students work in pairs to complete the activity. Have each group share their posts with the class. (*See next page for answers.*)

Subject Areas

- Science Literacy
- English Language Arts
- Health/Life Skills

Standards, Grs. 6–12

Common Core State Standards (CCSS)

RST.1

- Cite textual evidence to support analysis of science and technical texts.

W.1

Write arguments to support claims, using relevant and sufficient evidence.

Next Generation Science Standards (NGSS)

- **Core Idea MS-LS1.D/HS-LS1.D** Information Processing
- **Practice** Obtaining, Evaluating, and Communicating Information
- **Crosscutting Concept** Cause and Effect: Mechanism and Prediction

National Council for the Social Studies (NCSS)

- 8. Science, Technology, and Society

Additional Lesson Resources

- nida.nih.gov/drug-topics/parents-educators/lesson-plans

(Continued on the next page)

(Continued from previous page)

Writing Prompts

- Use evidence to explain why using cannabis may pose risks for teens that are different than those for adults.
- Write a paragraph explaining the best sources of information to trust when trying to understand if using a drug is a good idea or not. What are the motivations that lead companies and people to share information in certain ways? Consider the motivations and reliability of different sources of information—such as friends, doctors, teachers, parents, or companies or people that sell cannabis.
- How do you think using cannabis might affect a person's relationships with other people? Use facts about the drug's effects to support your answer.

Answers to the Student Activity

1. The **cerebrum** controls how the brain processes sensory information and controls higher-level thinking skills like problem-solving. When THC attaches to receptors in this area, it changes the way information is processed, which can impair thinking, sensory perception, attention, problem-solving, and decision-making.
2. The **limbic system**—including the hippocampus—is involved in learning new information and recording memories. THC can impair memory and emotion processing by changing the way cells communicate in this area.
3. THC can impact the way cells communicate in the **cerebellum**. This area of the brain is involved in coordination and balance and perception of time.
4. The **brain stem** is in charge of all the functions our body needs to stay alive—breathing, moving blood, and digesting food. It also links the brain with the spinal cord, which runs down the back and moves muscles. High doses of THC can cause an increase in heart rate.
5. The **limbic system**—including the amygdala—is involved in the processing of emotions, such as fear and anxiety. In some individuals, cannabis use can cause extreme feelings of fear and anxiety.
6. The **basal ganglia** are a group of structures deep within the brain that are strongly interconnected to other brain areas and involved in many processes, including motor function, cognition, and emotion. The basal ganglia also play an important role in regulating how the brain processes reward and reinforcement. Cannabis causes dopamine levels in the basal ganglia to increase. With regular use, this process can be linked to the development of addiction.

Help Spread the Facts About Cannabis

Knowing the facts about how drugs can affect your health is critical to being able to make healthy decisions. Read the article “Cannabis: The Facts You Need to Know” and explore the interactive “Cannabis and the Brain” to learn how cannabis products can affect how your brain functions. Use the information to answer the questions below.

PART 1: EXPLAIN THE EFFECTS

All regions of the brain are interconnected and work together to perform functions. The table below describes some actions or behaviors that might occur as a result of a person using cannabis. Match each action to the part of the brain that is most involved. In the right-hand column, explain how exposure to the chemical THC found in cannabis might influence this action or behavior.

Action or Behavior	Primary Brain Area	Explanation of the Effect of THC
1. Having difficulty concentrating or thinking clearly		
2. Forgetting an answer to a test question even after studying well		
3. Dropping the ball on an easy catch		
4. Feeling extremely anxious for no obvious reason		
5. Heart feels as though it's "racing"		
6. Struggling to stop taking a drug, even though it has negative effects on your life		

PART 2: SHARE THE FACTS

- Think about what you have learned about the effects of cannabis. What did you find most surprising? Write down two to three facts that you think would be most convincing if you were talking to a peer about the risks of cannabis.

1.

2.

3.

► Social media is one place where inaccurate information about cannabis may be spread. Use what you have learned to create a social media post, such as a meme or short video, that explains to other teens the facts they should know about cannabis.